51% White Whole Wheat Roll

Bread Recipe Source: USDA B16 Modified by KSDE April 2008

Ingredients	100 Servings		Servings		Directions		
	Weight	Measure	Weight	Measure			
White Whole Wheat Flour All-purpose Flour, enriched	3 lbs 12 oz 3 lbs 8 oz				 Place flour, dry milk, sugar, yeast and salt in mixer bowl. Blend with dough hook for approximately 2 minutes 		
Dry Milk, instant, nonfat Sugar, granulated Yeast, <i>instant</i> , dry Salt	7 oz 11.5 oz 3 oz 1.75 oz	1 3/4 cup 1/2 cup 2 Tbsp + 2 tsp			on low speed.		
Vegetable Oil		1 2/3 cup			Add oil and blend for approximately 2 minutes on low speed.		
Water (Calculate water temperature by subtracting the temperature of the dry ingredients from 145°)	4 lb 5 oz	2 qt + 1/4 cup (+ up to 1 cup if dough is stiff)			 Add first amount of water to the dry ingredients. If dough appears too stiff, add up to 1 cup extra water per 100 servings. More or less water can be added as needed. Mix for 1 minute on low speed or until all water is mixed with the dry ingredients. Knead dough on medium speed for 8-10 minutes until dough is properly developed. Use the gluten stretch test. (At 8 minutes, stretch the dough like a rope. If it breaks, continue to mix 2 additional minutes). 		
Non-stick Cooking Spray		As needed			Form dough into two pound balls and spray with non-stick cooking spray or cover with plastic wrap. Once all dough balls have been formed, begin shaping.		
					7. Form rolls from dough by pinching off 2 oz pieces and shaping. Place rolls in rows of 7 across and 10 down on sheet pans (18" x 26" x 2") which have been lightly coated with non-stick cooking spray.		
					 Place in a warm area (about 90° F) until double in size, approximately 45-60 minutes. 		

51% White Whole Wheat Roll Continued

Ingredients	100 Servings		Servings		Directions	
	Weight	Measure	Weight	Measure		
					9. Bake until lightly browned: Conventional oven: 400° F for 18-20 minutes Convection oven: 350° F for 12-14 minutes 10. Recommended internal temperature for baked whole wheat rolls is 196-198°F.	
					11. Rolls will have a better appearance if lightly sprayed with non-stick cooking spray when they come out of the oven.	

Serving Size: 1 2-oz roll 1 serving provides: 2 units grain/bread Yield: 12.5 lbs dough (100 rolls)

Nutrients Per Serving

Calories	167	Vitamin A	2 IU	Iron	1.41 mg
Protein	4.67 gm	Vitamin C	3.51 mg	Calcium	33.13 mg
Carbohydrate	28.75 gm	Fiber	2.5 gm	Cholesterol	0 mg
Fat	4.12 gm	% Fat	22.17 %	Sodium	205 mg
Saturated Fat	0.61 gm	% Saturated Fat	3.29 %	Trans Fat	0 gm

Note: Dough made with whole wheat flour will absorb more water and requires increased rising/proofing time. Mixing time is less because the bran from the whole grain cuts through developing gluten strands with increased mixing resulting in a product with low volume. Even an additional one minute mixing time with whole grains can make a difference in quality. Figuring water temperature so that the final dough temperature is ~80°F is essential for quality bread products.